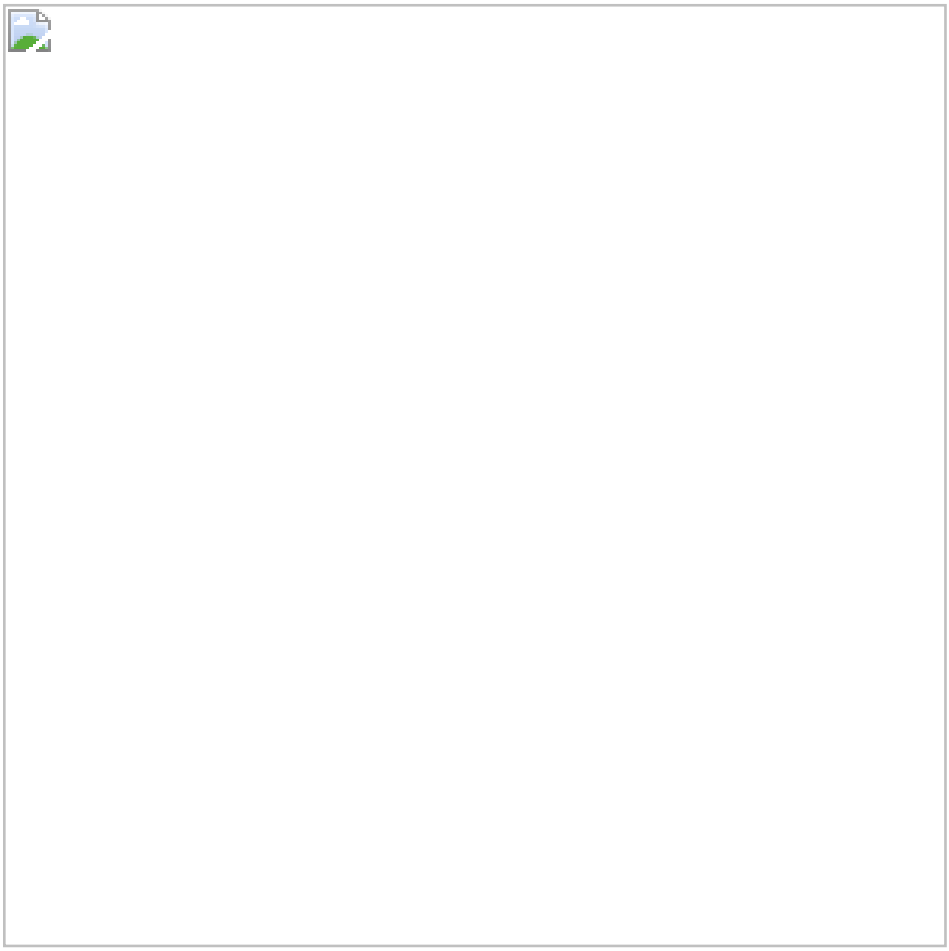

Hans Van Balen (16 September 1930 — 30 April 2013)

Author: Tinbergen, Joost M.

Source: Ardea, 102(1) : 115-117

Published By: Netherlands Ornithologists' Union

URL: https://doi.org/10.5253/078.102.0114

Hans van Balen
(16 September 1930 – 30 April 2013)

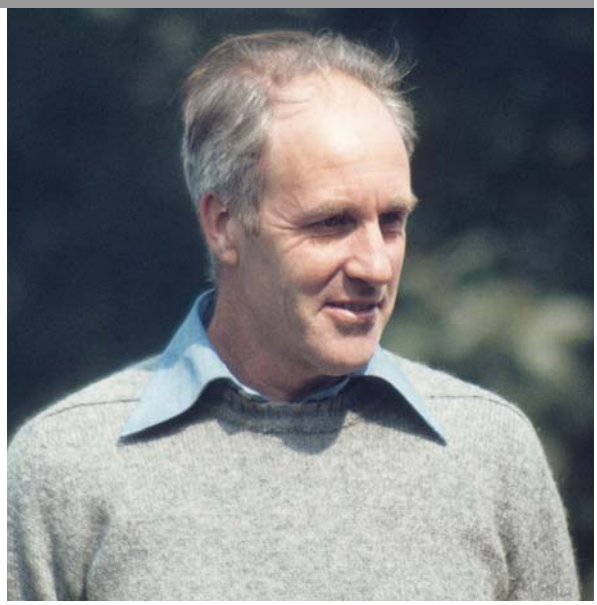

Photo Rinse D. Wassenaar

Hans van Balen was an enthusiastic ornithologist and bird ecologist. The grandson of his namesake Johan Hendrik van Balen, who published on birds in the second half of the 18th century, he took up a similar interest at young age. He studied biology in Leiden (1948–1958) in the time that the ethologists Niko Tinbergen and Jan van Iersel were active there. Van Balen started his career by studying the relaying behaviour of Black-tailed Godwits after clutch removal, with the aim of estimating the potential effects of egg collection on Godwit reproduction in the Dutch polder Arkemheen. His supervisor was Herman Klomp (ITBON, Institute for applied nature research), an ecologist involved in meadow bird protection. This work was published in Ardea (1959), discussing not only his own Godwit data but also what was known about other species on relaying after clutch removal.

Being interested in bird migration, he spent a lot of time on the 'vinkenbaan' of the Dutch 'Vogeltrekstation', a place where he learned to catch and handle birds, as he would do the rest of his life with pleasure. Naturally, he joined the bird migration camps in Putten together with Luuk Tinbergen, Herman Klomp and J.J. Zijlstra, a place where a generation of ornithologists had its roots.

During the start of the 20th century the Plant Protection Service (Plantenziektekundige Dienst in Wageningen) became interested in bird ecology, especially because of the role birds have in regulating insect numbers and preventing outbreaks. Wolda started the scientific work on hole breeding passerines in nest boxes in 1912, and Huib Kluijver, as the successor of Wolda (1951), continued what would become a long tradition of hole nesting bird work. Their work attracted international attention and inspired David Lack to start his own long-term population study on nest box breeding birds in 1947. Both population studies at the Hoge Veluwe and Wytham Woods near Oxford are still continuing today and have become famous, as they have contributed substantially to our knowledge about avian population regulation and the study of adaptation in a changing world.

In 1954, Kluijver became the director of the new Institute for Ecological Research (IOO) of the Dutch Academy of Arts and Sciences, an institute specially devoted to long-term population studies, with emphasis on the population ecology of Great Tits *Parus major*. In 1958, Kluijver choose Hans van Balen to become his second-in-command, where he took full share in the nest box studies in the different plots that the institute ran. In 1967 Van Balen published an extensive paper on wing length and body mass in different study populations of Great Tits, with the main conclusion that body size and mass in coniferous woods were lower than in deciduous woods. Habitat use had both his and Kluijver's full interest, as illustrated by the paper by Kluijver and Tinbergen (1953) on the buffer effect. Hans van Balen's thesis (defense 2 May 1973, promotor Prof. Dr. D.J. Kuenen, co-referenten Dr. H.N. Kluijver, Prof. Dr. K. Bakker) was titled "The comparative study of the breeding ecology of the Great Tit *Parus major* in different habitats' (Ardea 61, 1973) and is a most thorough study of the ecology of Great Tits. The goal of this study was to find out whether the preference of Great Tits for mixed over deciduous woods, that Kluijver & Tinbergen (1953) found, was adaptive. Van Balen convincingly showed that deciduous oak woods were rich in food and had high bird densities, much higher than pine woods, even if nest boxes were not limiting. Caterpillar availability in the breeding season was much higher in oak woods, and the peak food availability was earlier (second half of May in that time) than in pine woods (end of June). In the oak woods, caterpillar peak availability roughly coincided with when Great tit nestlings were seven days old, but

this was not the case in pine woods, where the timing of their first brood was not different from the oak woods. Van Balen studied differences in lay date and clutch size between habitats, the diet of the young (*Tortrix viridana* and *Operophthera brumata* in the oak stands and, at the peak, *Panolis flammea* in the pine stands) and their food consumption in relation to brood size and the survival of nestlings. His general conclusion was that Great Tits are adapted to breed in oak woods and populations in the coniferous woods are not able to adapt to the local circumstances, confirming the adaptive nature of the Great Tits' preference for oak wood. Why Great Tits still breed in pine woods may be explained by the buffer hypothesis: as we say now, they may make the best of a bad job. His thesis became very well cited.

In 1967, van Balen took over the leadership of the Great Tit group of the institute until his retirement in 1992, continuing the work of Kluijver together with colleagues Joop Mertens (physiology), Piet Drent (behaviour) and later Joost Tinbergen (behavioural ecology). He was not attracted to this management work, but realised that it was necessary. During Hans' directorship he managed an appreciable technical staff (among them van Eck (on Vlieland) Westra, Visser, de Goede and Speek) that were indispensable in carrying out all the fieldwork. He firmly secured the high quality of data collection on individually ringed Great and Blue Tits *Cyanistes caeruleus* in a number of woods such as Hoge Veluwe, Liesbos, Oosterhout and Vlieland. For Hans, the collection of long-term data sets from preferably undisturbed populations of Great Tits was of the greatest importance. This long-term work on population dynamics has regularly been under pressure, as people questioned the ongoing investment into these already well-studied species, both at Oxford and in The Netherlands. However, during the late 1980's the Great Tit population studies were an important illustration of the detrimental effect of acidification on avian reproduction (Graveland *et al.*, Nature 1994), which was only possible because changes could be shown in different habitats. The importance of looking back in time to investigate how populations have been dealing with long-term environmental change has increased since then, and current researchers stand on Hans' shoulders when analysing the effects of global change over the last 50 years (e.g., Visser *et al.* 2003, 2009). The institute at this moment still collects population data and has done so for the same populations since 1955: 60 years!

Van Balen also felt responsibility for Dutch ornithology. He was on the board of the Huib Kluijver Fonds, secretary of the Nederlands Ornithologische Unie (1971–1976) and he was co-founder of SOVON (1973). He also was editor of Ardea and Limosa, the two journals of the NOU.

Hans himself worked on several aspects of the ecology of Great Tits as can be seen from the papers he wrote. Among them is a paper on time saving mechanisms with Kluijver and Cave (1977), an experimental paper on the role of winter food in determining survival (1980) and a paper on effects of nest box size on reproduction (1984) to compare with reproduction in natural holes (1982). One very important spin-off of the painstaking data collection over the years was the PhD-thesis of Arie van Noordwijk, who, under supervision of Scharloo and van Balen, produced a wealth of papers on estimates of the heritability of a number of traits in Great Tits; one of the classic examples of heritability estimates from the field. Hans was keen to collaborate, as can be seen from the many papers he produced with others. For instance, a paper on density dependent survival with Tinbergen (1985), on seasonal decline in reproductive success with Verhulst (1995), with Perdeck on the tit survival in relation to the beech crop index (2000) and in recent years a number of papers with Marcel Visser, such as the paper on climate change and migration distance (2009). At the moment, the Animal Ecology Group of the now called Netherlands Institute of Ecology (NIOO-KNAW) is flourishing partly because they have these historical data on Great Tit populations, collected by predecessors such as Kluijver and van Balen, which allow them to quantify changes in Great Tit populations over time in a changing world.

Personally, Hans gave me the unique opportunity to do experimental work in 'his' long-term population studies that he managed with so much care. To show how I appreciated his drive to advance, in particular Great Tit ecology, and ornithology in general, I have visited him a number of times over the last few years. He was not in a very good shape, talked very softly, his binoculars within reach. His rather 'dry' sense of humour was still recognisable. Yet his eyes twinkled whenever the bird were the subject. He loved it when I told him about new developments in the tit work. We discussed the effect of Marten predation that has recently increased in our study area, and I asked his advice on an experiment manipulating nest box size. That will not be possible anymore!

Joost M. Tinbergen

Publications

ten Horn N.F.A.M. & van Balen J.H. 2010. Het gebruik van nestkasten als slaapplek door Koolmezen. Limosa 83: 119–125.

Visser M.E., Perdeck A.C., van Balen J.H. & Both C. 2009. Climate change leads to decreasing bird migration distances. Global Change Biol. 15: 1859–1865.

Grotan V., Saether B., Engen S., van Balen J.H., Perdeck A.C. & Visser M.E. 2009. Spatial and temporal variation in the relative contribution of density dependence, climate variation and migration to fluctuations in the size of great tit populations. J Anim. Ecol. 78: 447–459.

Visser M., Adriaensen F., van Balen J., Blondel J., Dhondt A., van Dongen S., du Feu C., Ivankina E., Kerimov A., de Laet J., Matthysen E., McCleery R., Orell M. & Thomson D. 2003. Variable responses to large-scale climate change in European *Parus* populations. Proc. R. Soc. B Biol. Sc. 270: 367–372.

Perdeck A., Visser M. & van Balen J. 2000. Great Tit *Parus major* survival, and the beech-crop cycle. Ardea 88: 99–108.

Verhulst S., van Balen J.H. & Tinbergen J.M. 1995. Seasonal decline in reproductive success of the Great Tit: Variation in time or quality? Ecology 76: 2392–2403.

Graveland J., van der Wal R., van Balen J.H. & van Noordwijk A.J. 1994. Poor reproduction in forest passerines from decline of snail abundance on acidified soils. Nature 368: 446–448.

Zandt H., Strijkstra A.M., Blondel J. & van Balen J.H. 1990. In: Blondel J. *et al.* (eds) Two Mediterranean Blue Tit populations are differences in the timing of breeding associated with caterpillar availability. Population biology of passerine birds. NATO ASI Ser. G 24, Springer, pp. 145–155.

van Balen J.H. & Potting R.P.J. 1990. Comparative reproductive biology of four Blue Tit populations in The Netherlands. In: Blondel J. *et al.* (eds) Population biology of passerine birds. Springer, pp. 19–38.

van Balen J. & Hage F. 1989. The effect of environmental-factors on tit movements. Ornis Scand. 20: 99–104.

van Balen J.H. 1988. Het aantalsverloop van de kleine holenbroeders in de jaren 1980–87. Nieuwsbrief SOVON Werkgroep Nestkastonderzoek 6: 7–11.

van Noordwijk A.J. & van Balen J.H. 1988. In: Clutton-Brock T.H. (ed.) The Great Tit. Reproductive success. University of Chicago Press, Chicago, London, pp. 119–135.

van Noordwijk A.J., van Balen J.H. & Scharloo W. 1988. Heritability of body size in a natural population of the Great Tit (*Parus major*) and its relation to age and environmental conditions during growth. Genet. Res. 51: 149–162.

Tinbergen J.M. & van Balen J.H. 1988. Food and multiple breeding. In: Ouellet (ed.) Proc. Orn. Congr., Ottawa 1986, pp. 380–391.

van Balen J., van Noordwijk A. & Visser J. 1987. Lifetime reproductive success and recruitment in two Great Tit populations. Ardea 75: 1–11.

Tinbergen J.M., van Balen J.H., Drent P.J., Cavé A.J., Mertens J. & Den Boer-Hazewinkel J. 1987. Population dynamics and cost-benefit analysis; an attempt to relate population dynamics via lifetime reproductive success to short-term decisions. Netherl. J. Zool. 37: 180–213.

van Balen J., van Noordwijk A. & Visser J. 1987. Lifetime reproductive success and recruitment in 2 Great Tit populations. Ardea 75: 1–11.

van Balen J., Cavé A., Perdeck A. & Tinbergen J. 1987. Causal and evolutionary aspects of the determination of bird numbers with special reference to hole-nesting birds, workshop, 7–11 October 1985, Wageningen, The Netherlands – Preface. Ardea 75: U1–U1.

Tinbergen J.M., van Balen J.H. & van Eck H.M. 1985. Density-dependent survival in an isolated Great Tit population: Kluyver's data reanalysed. Ardea 73: 38–48.

van Noordwijk A.J., van Tienderen P.H., de Jong G. & van Balen J.H. 1985. Genealogical evidence for random mating in a natural population of the great tit (*Parus major* L.). Naturwiss. 72: 104–105.

van Balen J.H. 1984. The relationship between nest-box size, occupation and breeding parameters of the Great Tit *Parus major* and some other hole-nesting species. Ardea 72 163–175.

van Balen J.H., Booy C.J.H., van Franeker J.A. & Osieck E.R. 1982. Studies on hole-nesting birds in natural nest sites. 1. Availability and occupation of natural nest sites. Ardea 70: 1–24.

van Noordwijk A.J., van Balen J.H. & Scharloo W. 1981. Genetic and environmental variation in clutch size of the Great Tit (*Parus major*). Netherl. J. Zool. 31: 342–372.

van Noordwijk A.J., van Balen J.H. & Scharloo W. 1981. Genetic variation in egg dimensions in natural populations of the Great Tit. Genetica 55: 221–232.

van Noordwijk A.J., van Balen J.H. & Scharloo W. 1981. Genetic variation in the timing of reproduction in the Great tit. Oecologia 49: 158–166.

Van Noordwijk A., Keizer L., van Balen J. & Scharloo W. 1981. Genetic variation in egg dimensions in natural populations of the Great Tit. Genetica 55: 221–232.

van Noordwijk A.J., van Balen J.H. & Scharloo W. 1980. Heritability of ecologically important traits in the Great Tit. Ardea 68: 193–202.

van Balen J.H. 1980. Population fluctuations of the Great Tit and feeding conditions in winter. Ardea 68: 143–164.

van Balen J.H. 1979. Observations on the post-fledging survival of the Pied Flycatcher, *Ficedula hypoleuca*. Ardea 67: 134–137.

Kluyver H.N., van Balen J.H. & Cavé A.J. 1977. The occurrence of time-saving mechanisms in the breeding biology of the Great Tit, *Parus major*. In: Stonehouse B. & Perrins C.M. (eds.) Evolutionary ecology, pp. 153–169.

van Balen J.H. & Speek B.J. 1976. Een invasie van mezen (Paridae) in de herfst van 1971. Limosa 49: 188–200.

van Balen J.H. 1973. A comparative study of the breeding ecology of the Great Tit *Parus major* in different habitats. Ardea 61: 1–93.

van Balen J.H. & Cavé A.J. 1970. Survival and weight loss of nestling Great tits, *Parus major*, in relation to brood-size and air temperature. Netherl. J. Zool. 20: 464–474.

van Balen J. 1967. The significance of variations in body weight and wing length in the Great Tit, *Parus major*. Ardea 55: 1–59.

van Balen J. 1980. Population fluctuations of the Great Tit and feeding conditions in winter. Ardea 68: 143–164.

van Balen J. 1979. Observations on the post-fledging dispersal of the Pied Flycatcher, *Ficedula hypoleuca*. Ardea 67: 134–137.

van Balen J. 1973. Comparative study of breeding ecology of Great Tit *Parus major* in different habitats. Ardea 61: 1–93.

van Balen J. 1967. Significance of variations in body weight and wing length in Great Tit *Parus major*. Ardea 55: 1–59.

van Balen J.H. 1959. Over de voortplanting van de Grutto, *Limosa limosa*. Ardea 47: 76–86.